

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings of claims in the application:

**Listing of Claims:**

1-22. (Cancelled)

23. (Currently amended) An isolated polynucleotide ~~that hybridizes under stringent conditions to a nucleic acid~~ fragment of the methylthioadenosine phosphorylase (MTase) protein coding domain of SEQ ID NO:1 comprising nucleotides 2754-2894 of SEQ ID NO:1 or its complement, ~~wherein the isolated polynucleotide is less than 500 nucleotides long, wherein a stringent hybridization condition is incubation at 42°C in a solution comprising 50% formamide, 1% SDS, 2 X SSC, and 10% dextran sulfate and washes at 65°C in a solution comprising 2 X SSC and 0.1% SDS,~~

24. (Currently amended) The isolated polynucleotide fragment of claim 23, consisting of nucleotides 2754-2894 of SEQ ID NO:1.

25. (Currently amended) An isolated polynucleotide ~~that hybridizes under stringent conditions to a nucleic acid~~ fragment of the methylthioadenosine phosphorylase (MTase) protein coding domain of SEQ ID NO:1 comprising nucleotides 2838-2876 of SEQ ID NO:1 or its complement, ~~wherein the isolated polynucleotide is less than 500 nucleotides long, wherein a stringent hybridization condition is incubation at 42°C in a solution comprising 50% formamide, 1% SDS, 2 X SSC, and 10% dextran sulfate and washes at 65°C in a solution comprising 2 X SSC and 0.1% SDS,~~

26. (Currently amended) The isolated polynucleotide fragment of claim 25, consisting of nucleotides 2838-2876 of SEQ ID NO:1.

27. (Currently amended) An isolated polynucleotide ~~that hybridizes under stringent conditions to a nucleic acid~~ fragment of the methylthioadenosine phosphorylase (MTase) protein coding domain of SEQ ID NO:1 comprising nucleotides 2426-2548 of SEQ ID

NO:1 or its complement, ~~wherein the isolated polynucleotide is less than 500 nucleotides long, wherein a stringent hybridization condition is incubation at 42°C in a solution comprising 50% formamide, 1% SDS, 2 X SSC, and 10% dextran sulfate and washes at 65°C in a solution comprising 2 X SSC and 0.1% SDS.~~

28. (Currently amended) The isolated polynucleotide fragment of claim 27, consisting of nucleotides 2426-2548 of SEQ ID NO:1.

29. (Currently amended) An isolated polynucleotide ~~that hybridizes under stringent conditions to a nucleic acid~~ fragment of the methylthioadenosine phosphorylase (MTase) protein coding domain of SEQ ID NO:1 comprising nucleotides 1764-1953 of SEQ ID NO:1 or its complement, ~~wherein the isolated polynucleotide is less than 500 nucleotides long, wherein a stringent hybridization condition is incubation at 42°C in a solution comprising 50% formamide, 1% SDS, 2 X SSC, and 10% dextran sulfate and washes at 65°C in a solution comprising 2 X SSC and 0.1% SDS.~~

30. (Currently amended) The isolated polynucleotide fragment of claim 29, consisting of nucleotides 1764-1953 of SEQ ID NO:1.

31-38. (Cancelled)

39. (New) The isolated polynucleotide fragment of claim 23, 25, 27, or 29, wherein the isolated polynucleotide fragment is labeled.

40. (New) The isolated polynucleotide fragment of claim 23, 25, 27, or 29, wherein the isolated polynucleotide fragment is used to determine MTase deficiency in a biological sample.